UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
SUPERFUND SITE STRATEGY RECOMMENDATION - REGION 06

Site Name: Study Butte Mining Company **CERCLA ID#:** TXN000622124

Alias Site Name: NA

Address: TX-118 south of intersection with FM170

City/County or Parish/State/Zip: Study Butte / Brewster County / Texas / 79852

Report Type: Site Inspection **Date:** March xx, 2022 **Author:** TCEQ - Anthony Ericksen

RECOMMENDATION:

☒ 1. No Further Remedial Action Planned Under Superfund (NFRAP)

☐ 2. Further Investigation Needed Under Superfund
☐ PA ☐ HRS Priority: ☐ High
☐ SI ☐ RI/FS ☐ Low
☐ ESI ☐ RA
☐ Other:
To be performed by:

☐ 3. No further assessment (i.e., not a valid CERCLA site)

☐ 4. Action Deferred to: ☐ RCRA ☐ NRC

☒ 5. Site Being Addressed Under the State Voluntary Cleanup Program (VCP): ☐ Yes ☒ No

NOTIFY AUTHORITY:

☒ Removal	☐ RCRA	☐ TSCA	☐ CAA	☐ SMCRA
☐ Remedial	☐ State/Tribe	☐ NPDES	☐ NRC	☐ Resource Trustee:
☐ CERCLA Enforcement	☐ Federal Facility	☐ UIC	☐ SPCC	☐ Other:

SEND SSSR COPIES TO: ☐ SEDAE ☐ WDDG ☐ ATSDR ☒ State Agency ☐ Tribal Agency

DISCUSSION:

The Study Butte Mining Company site is located in the town of Study Butte, in southwestern Brewster County, in the Big Bend of Texas. More specifically, it is located five miles east of Terlingua, approximately one mile south of the intersection of TX-118 and FM170, on the eastern side of TX-118. The site is no longer active and currently consists of an abandoned mine shaft with tailings piles and remnant mining works infrastructure. The mine shaft on-site was sealed in 1998 as part of an abandoned mine land reclamation project. The shaft occupies a topographic high point, while the tailings piles form slopes beneath it. The remaining mining works include but are not limited to several silos, pieces of pipes, ruins and footprints of old buildings, and piles of bricks and tiles that made up these buildings and other infrastructure such as furnaces. Directly below the mining works and tailings is a creek bed, and runoff from the site drains into this fluvial feature. To the north of the site is the town center of Study Butte, to the south and west are large amounts of open land with a few buildings scattered throughout, and to the east of the site is unoccupied land.

The Study Butte Mine is part of the Terlingua Mining District and operated intermittently throughout the 1900s. Production years are believed to have included the time periods of 1903-1905, 1915-1920, 1928-1934, 1936, 1944, and the early 1970s. The Study Butte Mine was the third largest producer of mercury (quicksilver) in this district. Total production throughout these time periods was estimated to be 15,011 flasks with each flask containing 76 pounds of mercury. While there are estimates of the amount produced, there are no records of the amount of hazardous substance released.

A Preliminary Assessment of the site was completed in April 2020. Present on site were old mining works infrastructure including several large silos and other processing equipment, ruins of old buildings, a dry tailings pile, and piles of bricks associated with the old furnace. The tailings pile had a distinct yellow color and smelled intermittently of sulfur. Runoff

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from the tailings pile was evident as fine yellow sediment that coated the ground below it, leading into the creek that runs below the processing area. The contaminant of concern at this site is mercury, which was extracted from the cinnabar ore present in the region. Multiple XRF readings indicated the presence of elevated mercury levels throughout the site, including in the dry tailings pile, bricks, and the slope leading into the creek bed. These concentrations ranged from 79 ppm to 4200 ppm.

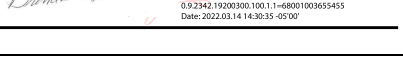
Potential sources associated with the site include: 1) the contaminated operations area and mining works infrastructure; 2) the waste tailings piles; and 3) sediment along the surface water pathway that has the potential to become contaminated by the tailings piles. Due to the previous knowledge of elevated mercury levels at the sources, the focus of this Site Inspection sampling event was on the surface water pathway, thus no source samples were collected.

The surface water migration pathway target distance limit (TDL) begins at the probable point of entry (PPE) of surface water runoff from the site to a surface water body and extends downstream for 15 miles. Precipitation and runoff from the site flows to the northeast into the unnamed creek. Surface water then flows to the southwest for approximately 0.6 mile before joining Rough Run, marking the PPE for the surface water migration pathway. From the PPE, Rough Run flows southwesterly for approximately 2.1 miles before joining Terlingua Creek. The 15-mile TDL terminates just past the junction of Terlingua Creek and the Rio Grande River, the nearest large surface water body in the region.

The field sampling event associated with this Site Inspection was conducted on December 6, 2021. A total of 22 samples, including 4 background samples and 2 field duplicate samples, were collected during the sampling event. The sampling focused on the unnamed creek and Rough Run. All samples were analyzed for mercury. Analytical results of the background samples collected during the sampling event did not detect significant concentrations of mercury and all concentrations were below the EPA Regional Screening Level of 11.0 mg/kg. Analytical results from all downstream samples collected from the unnamed creek and Rough Run did not detect significant concentrations of mercury and all concentrations were below the EPA Regional Screening Level of 11.0 mg/kg.

The Study Butte Mining Company operated intermittently throughout the 1900's and closed in 1972. Mercury is the contaminant of concern at the site. Although elevated levels of mercury have been detected in soils, tailings and construction debris associated with the site, samples collected downstream of the site in the surface water pathway during this Site Inspection did not detect significant concentrations of mercury. Based on this information, and information collected previously during the Preliminary Assessment, the Study Butte Mining Company site does not appear to meet the criteria necessary for listing on the National Priorities List (NPL) of federal Superfund sites. As such, it is recommended that the site receive a designation of "No Further Remedial Action Planned" (NFRAP) in the Superfund Enterprise Management System (SEMS). The State will be provided a copy of this decision document.

APPROVALS:

Report Reviewed by:	Bret Kendrick (Site Assessment Manager)	**Signature:**		**Date:**	03/10/2022
Disposition Approved by:	Brenda Cook (Section Chief - SEDAS)	**Signature:**	 Digitally signed by BRENDA COOK DN: c=US, o=U.S. Government, ou=Environmental Protection Agency, cn=BRENDA COOK, 0.9.2342.19200300.100.1.1=68001003655455 Date: 2022.03.14 14:30:35 -05'00'	**Date:**	03/14/2022